

Chapter One: Inventory

1.0 General

Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6A, *Airport Master Plans*, outlines the necessary steps in the development of an Airport Master Plan (AMP).ⁱ The initial step, inventory, is the collection of data pertinent to Concord Municipal Airport and the area it serves. The objective of the inventory task for the airport is to provide background information for subsequent phases of analysis and a “snapshot” of the airport baseline conditions as of September 2004.

This data was obtained through the collection and analysis of previous airport reports and studies such as the *March 1996 Concord Municipal Airport Master Plan Update*ⁱⁱ and the *2003 New Hampshire Aviation Airport System Plan*ⁱⁱⁱ, on-site investigations of the airport, interviews with staff members from Concord’s Community Development Department, interviews with the Airport Manager/Fixed Base Operator (FBO), interviews with members of the New Hampshire Army National Guard and other airport tenants and airport users.

The airport inventory is described in the following sections:

- ➔ Airport Setting and Access
- ➔ The Airport’s Management and Legal Structure
- ➔ The Airport’s Financial Structure
- ➔ Land Use
- ➔ Airport Development History
- ➔ Aviation Services, Airport Tenants, and Other Aviation Activity
- ➔ Airport Facilities
- ➔ Snow Removal Equipment and Storage Building
- ➔ Fire Station and Emergency Response Facilities

A reduced 11” by 17” drawing of the existing airport facilities is available in *Chapter 5 – Airport Plans, Drawing 2 of 11* of this airport master plan update report.

2.0 Airport Setting and Access

This section provides a brief and general description of Concord Municipal Airport’s location, access roadways, airport access, and airport security.

2.1 Airport Location and Airport Roadway Access

The 614-acre airport is located in central New Hampshire, in the City of Concord (the State’s capital since 1808^{iv}), approximately 2 miles east of the City center. The airport is situated south of U.S. Route 4 (also known as I-393) and north of U.S. Route 3 (Manchester Street) both of which are less than 2-miles east of Interstate Route 93. Primary access to the airport is via Airport Road, connecting to both U.S. Route 4 and U.S. Route 3. Additional access is via Regional Drive, located north of the airport, parallel to U.S. Route 4. The City center, airport location and access roadways are depicted in **Figure 1-1**.^v

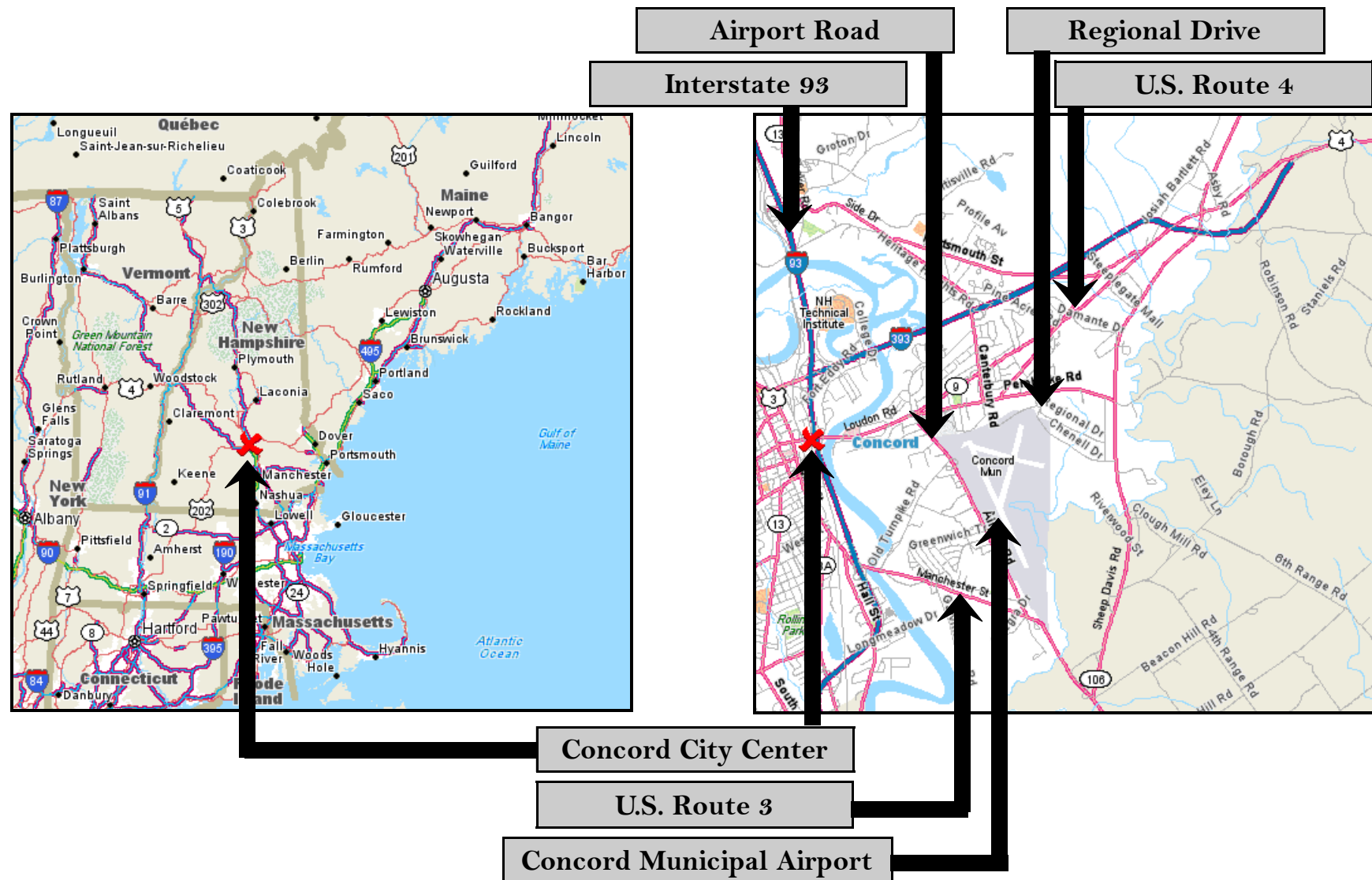


Figure 1-1: Concord Municipal Airport Location

The airport is 346 feet above Mean Sea Level (MSL),^{vi} the Airport Reference Point (ARP), or approximate geometric center of all useable runway surfaces, is situated on latitude 43° 12' 09.838" N and longitude 071° 30' 08.228"W.^{vii}

Concord Municipal Airport is a general aviation airport, which is an airport that does not receive scheduled commercial air service. Commercial air service airports are located in close proximity: Manchester Airport in Manchester, New Hampshire is approximately 20 miles south; Pease Airport in Portsmouth, New Hampshire is approximately 45 miles east; Lebanon Municipal Airport in Lebanon, New Hampshire is approximately 58 miles north-northwest; and Logan International Airport in East Boston, Massachusetts is approximately 70 miles south-southeast.

2.2 Airport Access and Airport Security

As indicated above, the main entrance to the airport is via Airport Road, which provides access to the terminal building, offices and hangars occupied by Concord Aviation Services (Airport Manager/FBO); private, City and State owned aircraft storage hangars; and both itinerant and based aircraft ramps. Regional Drive provides access to offices and hangars occupied by the New Hampshire Army National Guard and the airport's snow removal equipment building.

The airport's security fence encompasses approximately 2/3 of the 614-acre property. The southeastern boundary is not fenced due to terrain and safety issues. The fenced area has several key card activated electric slide gates or combination/pad lock gates that allow for vehicular access. The electric sliding gates are located along Airport Road allowing access to private, City and State owned aircraft storage hangars and other airport tenants.

3.0 The Airport's Management and Legal Structure

The City of Concord owns and operates the airport. As indicated in the *March 1996 Concord Municipal Airport Master Plan Update*,^{viii} Concord Municipal Airport is managed by several of the City's departments. Although the airport is listed on the City's web site as the responsibility of the Community Development Department,^{ix} the following also oversee and have responsibility for the airport and daily airport operations:^{viii and x}

- The 15-member City Council consisting of a Mayor, four Councilors-at-large elected by qualified voters of the City, and ten Ward Councilors elected by qualified voters within each of the 10 wards identified in the City Charter, is responsible for overall airport policy, contracts and budget approval.
- The City Manager, who serves as the Chief Executive Officer, is responsible for the overall management of the airport.
- The Airport Advisory Committee is advisory to the City Council on matters related to planning and development of the airport and rules and regulations for airport operations.
- The General Services Department is responsible for maintaining the airport's facilities and infrastructure (buildings, runways, taxiways, roadways, utilities).
- The Community Development Department is responsible for real estate development of all airport property, airport capital improvements and other airport related activities/projects.
 - The Business Development Division is also responsible for real estate development and marketing of the airport.
 - The Engineering Department plays a key role in design and construction management for improvements at the airport. The Department is responsible for airport capital improvement projects.

- The Finance Department is responsible for the airport's daily operating expenses and accounting.
- The FBO is responsible for the oversight of daily airport operations, interior building maintenance, and servicing aircraft (both based and itinerant aircraft) at the airport. The FBO is also responsible for leasing aircraft hangars and tie-downs and serves as the on-site airport manager.
- The New Hampshire Army National Guard is responsible for the maintenance and operation of their facilities at the airport.

At the Federal level, Concord Municipal Airport is subject to the regulations of the United States Department of Transportation (USDOT) and the FAA. On a State level, the airport is subject to the regulations of the New Hampshire Department of Transportation (NHDOT) and New Hampshire Statutory Law, Title XXXIX, Chapter 422, *New Hampshire Aeronautics Act*; Chapter 423, *Municipal Airports*; and Chapter 424, *Airport Zoning*.^{xi}

Concord Municipal Airport also has minimum standards in place, which were adopted on March 12, 1984 and revised on September 8, 1986.^{xii} According to the Aircraft Owners and Pilots Association (AOPA), in their publication, *Minimum Standards for Commercial Aeronautical Activities*, "These minimum standards are intended to protect the level and quality of services offered to aircraft owners, pilots, and the public at large".^{xiii} The FAA states in Advisory Circular (AC) 150/5190-5, *Exclusive Rights and Minimum Standards for Commercial Aeronautical Activities*,^{xiv} that, where minimum standards are adopted and established by the airport sponsor, they should be applied evenhandedly and uniformly to all on-airport commercial aeronautical activities. The failure to do so may violate the FAA's policy on exclusive rights, in which an airport sponsor is prohibited from granting an exclusive right to a single operator for the provision of an aeronautical activity to the exclusion of others. Airport sponsors who receive Federal financial assistance must agree to uphold that policy through enforcement of their minimum standards to protect the level and quality of services offered to the public.

At Concord Municipal Airport, all tenant leases require the lessees adhere to the airport's rules, regulations and standards.

4.0 The Airport's Financial Structure

The FAA designates Concord Municipal Airport as a publicly owned, public-use facility. Under the Airport and Airways Improvement Act, the Secretary of Transportation is required to publish a national plan for the development of public-use airports. The plan is published as the National Plan of Integrated Airport Systems (NPIAS), which identifies more than 3,000 airports that are significant to the nation's air transportation system and thus eligible to receive Federal grants under the Airport Improvement Program (AIP). The NPIAS comprises all commercial service airports, all reliever airports, and selected general aviation airports. Development planned to receive Federal funding is identified in the NPIAS for each eligible public-use airport based on an airport's role.

The NPIAS defines an airport's service level and role by the type of public service the airport provides to its community. Concord Municipal Airport's service level is defined as a general aviation (GA) airport.^{xv}

Vision 100, the Century of Aviation Reauthorization Act, reauthorizes Federal aviation programs through fiscal year 2007 and sets spending levels for the AIP and other programs that develop and maintain facilities at airports around the country. A major component of the bill is the AIP program, which provides funding for airport rehabilitation and development projects. According to AIP, GA airports under the NPIAS receive 95 percent funding from the FAA for projects that are determined to

be eligible.^{xvi} This is a temporary increase (applicable during Federal fiscal years 2004 – 2007 – Vision 100) from the previous FAA funding level of 90 percent, which was applicable during Federal fiscal years 2000 – 2003. This temporary increase applies to small hub and smaller type airports, such as Concord Municipal Airport. This airport master plan update has received 95 percent funding from the FAA.

NHDOT - Division of Aeronautics provides 2.5 percent of the total cost of federally eligible projects from the State's General Court, which appropriates the money as part of the State's biennium budget.^{xvii} According to the *2003 New Hampshire Aviation Airport System Plan*, the State of New Hampshire does not have an aviation trust fund. The City of Concord, as the local sponsor, and airport owner, funds the remaining 2.5 percent from the City's airport fund. Projects ineligible for Federal funding must either be funded exclusively, or by a combination of, State, City/airport and private entity funds. Recently (City fiscal year 2003/2004), due to a 26-acre land lease to the New Hampshire Army National Guard for their new office/hangar and ramp facility, airport revenues have begun to cover the airport's general operating expenses.

Further analysis of Concord Municipal Airport's finances and operating budget is included in *Chapter 6 – Capital Improvement Plan & Airport Operations/Finances*.

5.0 Land Use

Federal Aviation Regulation (FAR) Part 150, *Airport Noise Compatibility Planning*, contains Federal standards on determining land use compatibility for given airport noise levels. Airport noise is measured in terms of annual day-night average sound levels (DNL). All land uses, including residential, are deemed compatible with levels less than 65 DNL. Other land uses, such as industrial and commercial are compatible with somewhat higher DNL levels.^{xviii}

The following sections provide a “snapshot” of land use on and immediately surrounding the airport, while *Chapter 4 – Environmental Review*, of this airport master plan update report, identifies existing and future airport noise levels. The information provided in this chapter and in *Chapter 4 – Environmental Review*, allows us to determine if those land uses are compatible with existing and future airport operations.

According to the *Zoning Ordinance for the City of Concord, New Hampshire*, as adopted by the City Council on November 29, 2001,^{xix} every parcel of land in the City of Concord is subject to the restrictions and regulations of a Base District and any Overlay Districts established for the area. The following identifies the Base Districts and Overlay Districts as they apply to land uses on and immediately surrounding the airport.

A reduced 11” by 17” drawing of on-airport and off-airport land use is available in *Chapter 5 – Airport Plans, Drawing 10 of 11* of this airport master plan update report.

5.1 Land Use - On and Off Airport

According to the Concord Zoning Ordinance, on-airport land use consists of five Base Districts and one Overlay District, while adjacent off-airport land use consists of seven Base Districts. The basic purposes of those districts are summarized as follows (more detailed information is available in the City Zoning Ordinance):^{xx}

Industrial District (IN) – established for the development of manufacturing, research and development facilities, wholesaling, warehousing, distribution, and offices, wherein

full municipal utility services are available. Access may also be available to rail or air transportation.

Open Space Residential District (RO) – established to accommodate single-family dwellings as well as cluster developments, agricultural, forestry, and low impact outdoor recreational uses.

Single Family Residential (RS) – established to encompass those areas of the City that have been substantially developed under prior provisions of the zoning ordinance as standard or cluster subdivisions of single-family homes.

Office Park Performance District (OFP) – established to provide for the large scale, integrated development of professional offices, and research and development facilities.

Institutional District (IS) – established to accommodate large-scale government, educational, healthcare, and cultural facilities together with medical and professional offices and high density residential uses.

High Density Residential District (RH) - established to include existing multifamily and mobile home park developments located on large parcels.

General Commercial District (CG) - established to provide for a mixture of retail, restaurant, and service uses including motor vehicle sales and service.

Shoreland Protection (SP) District (an Overlay District) – established to protect the City’s surface waters.^{xxi}

5.1.1 On-Airport Land Use

According to the Concord Zoning Ordinance, on-airport land use consists of the following as identified in **Table 1-1**:

Table 1-1: On-Airport Land Use – Concord Municipal Airport

District	On-Airport Land Use
Base District	Industrial District (IN)
	Open Space Residential District (RO)
	Single Family Residential (RS)
	Office Park Performance District (OFP)
	Institutional District (IS)
Overlay District	Shoreland Protection (SP) District

5.1.2 On-Airport Land Use - Conservation Management Agreement

A Conservation Management Agreement between the City of Concord, NHDOT, the U.S. Fish and Wildlife Service and the New Hampshire Fish and Game Department was created for the purpose of managing airport lands that provide and enhance essential habitat for the Karner Blue Butterfly, a Federal and State listed endangered species.

To protect the Karner Blue Butterfly and its habitat, conservation areas, or zones, were created on the airport. *Chapter 4 – Environmental Review*, of this airport master plan update report provides more information on the Karner Blue Butterfly and the conservation zones, while the conservation zones are identified in *Chapter 5 – Airport Plans*, of this airport master plan update report.

5.1.3 Off-Airport Land Use

According to the Concord Zoning Ordinance, adjacent, off-airport land use consists of the following as identified in **Table 1-2**:

Table 1-2: Off-Airport Land Use – Concord Municipal Airport

	Off-Airport Land Use			
District	Adjacent Land Use North of Airport	Adjacent Land Use East of Airport	Adjacent Land Use South of Airport	Adjacent Land Use West of Airport
Base District	Industrial District (IN)	Office Park Performance District (OFP)	High Density Residential District (RH)	Single Family Residential District (RS)
	Single Family Residential District (RS)		General Commercial District (CG)	
	Institutional District (IS)			Institutional District (IS)
	Office Park Performance District (OFP)		Open Space Residential District (RO)	Industrial District (IN)
Overlay District	None	None	None	None

5.2 Land Use - Airport Zoning and Control of Structures

The February 1977 Zoning Ordinance for the City of Concord identified an Airport Approach Overlay District under Article 28-11-6, in which the airports approach surfaces were identified. Subsequent updates to the cities ordinance removed the Airport Approach Overlay District from the ordinance and incorporated the airport into the Industrial District.^{xxii} Although the current ordinance does not specify an airport district or airport-related zoning such as an Airport Approach or Protection Overlay Zone or Airport Clear Zone, they do identify protection of the airport's air space in *Article 28-4, Development Design Standards*.^{xxiii} Under Article 28-4, height restrictions are identified and reference is made to the restrictions that surround the airport's approach surfaces. Discussions with the City's Code Administrator indicated that they rely on State statutes to enforce height restrictions around the airport. State statutes regarding control of tall structures and airport zoning is found under New Hampshire Statutes, Title XXXIX, *Aeronautics*, Chapters 422B, *Control of Tall Structures*, and 424, *Airport Zoning*.^{xxiv}

While the FAA defines the criteria regarding structures that might penetrate navigable airspace, the FAA relies on State and local zoning regulations to provide height and airspace protection. Such regulation around an airport limits encroachment of the runway protection zones (RPZs) and imaginary surfaces (FAR Part 77), thereby ensuring the safety of the airspace around the airport.

To provide height and airspace protection, the FAA requires that any company proposing construction or alteration on or near the airport file FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, at least 48 hours prior to the start or construction of alteration. Once filed, the FAA reviews the proposed location and finished height and determines if the proposed construction or alteration impacts the airports runway protection zones or any of the airports imaginary surfaces.

6.0 Airport Development History

It is useful to review the historical development of the airport and prior facility recommendations to understand what has been implemented before updating the airport master plan.

A majority of this airport history section was compiled from the *1980 Airport Master Plan - Concord Municipal Airport* completed by Dufresne-Henry and PRC Speas Associates^{xxv}, the New Hampshire Aviation Historical Society's web page^{xxvi}, the airport development plan completed by the NHDOT – Division of Aeronautics entitled, *A Plan for the Development of Airports in New Hampshire 2003*^{xxvii} and the *March 1996 Concord Municipal Airport Master Plan Update*.ⁱⁱ

Table 1-3 depicts the historical development that has occurred at Concord Municipal Airport from 1911 to 2004. Some development may not be listed on Table 1-3 such as routine maintenance^{xxviii} and State funded maintenance projects such as pavement crack filling/sealing^{xxix}.

Table 1-3: Development at the Concord Municipal Airport: 1911 to 2004

Date	Description of Development
1911	This year marked the first recorded flight of any airplane operated in the State of New Hampshire, "On June 19, 1911 Harry Atwood flew a Burgess-Wright bi-plane from Waltham, MA to Nashua, Manchester and Concord." ^{xxvi}
1920	Robert C. Fogg becomes the first resident of New Hampshire to own an airplane and lands in Concord in his Canadian WW I "Jenny"
	Mr. Robert C. Fogg opened the first fixed base operation in New Hampshire at the National Guard Muster Grounds in Concord
	A local aviation committee in Concord is formed to raise money to purchase an "aviation field"
	Concord is the State's first airport developed at the State Muster Grounds situated along the Merrimack River
1926	Concord Airport Corporation is formed by the Aviation Syndicate of Concord and petitions the State Legislature and the Executive Council for use of State-owned property, south of the New Hampshire National Guard Headquarters, for the Concord airport
1927	July 25, 1927 Charles Lindbergh lands at Concord Airport in the Spirit of St. Louis on his U.S. tour
1928	Concord's first aircraft hangar is built
	Northeast Airways makes the first round trip flight from Concord to Manchester, to Boston
1936	The Aviation Syndicate of Concord sells the airport land to the City of Concord
	Clearing of land for the runways and the administration building begins
1937	Construction of the present Concord Municipal Airport facility (runways and administration building) begins
1939	Concord now has paved runways
1941	The Civil Air Patrol becomes active at Concord Municipal Airport
1942	The City of Concord spends \$30,000 for the acquisition of more land for airport purposes. The Federal government contributes \$459,000 for the site construction
1943	Concord terminal building housing FAA Flight Service and the National Weather Service is constructed
	Concord's second aircraft hangar is built
	The airport now consists of three hard-surfaced runways constructed on 800-acres of land
1946	Mr. J. Wayne Ferns and Frank Ferns opened the second fixed base operation at Concord Municipal Airport, Ferns Flying Service, Inc. (FFS)
1947	Northeast Airlines provides air carrier service to Concord

Table 1-3 Continued

1948	Grading and drainage improvements are made for the ramp, taxiways and adjacent areas
	Ramp and taxiways are paved
	Electrical conduit is installed for runway lighting
	Runway marker lights are relocated
1950	The airport access roads and automobile parking lot is paved
	The runway pavement markings are painted
	A segmented circle is constructed
1957	Concord's third aircraft hangar is built
	The Aviation Association of New Hampshire is founded in Concord
	High intensity elevated runway marker lights are installed on Runway 17-35
	Runway obstructions are cleared
1958	Runway 35 is extended
	Runway and taxiway pavement markings are painted
	Runway 35 approach is cleared
1961	The terminal building is expanded (4,680 square feet) to house the then Federal Aviation Agency (now the Federal Aviation Administration) and U.S. Weather Bureau
1962	Northeast Airlines discontinues air carrier service to Concord
1966	High intensity lights are replaced on Runway 17-35 and a Visual Approach Slope Indicator (VASI) is installed for Runway 17
1973	Runway 17-35 is extended by 1,000 feet and a partial parallel taxiway is constructed
1974	A localizer is installed for an instrument approach to Runway 35
1974	The partial parallel taxiway to Runway 17-35 is extended
1978	Two off-site airport hazard beacons are installed
	Precision Airlines based in Springfield, Vermont adds Concord to their route structure, which links Concord to Boston with connections through Manchester and Nashua
1979	Eight-foot security fencing is installed (19,000 linear feet)
1980	Precision Airlines discontinues providing air carrier service to Concord
1983	The airport drainage is improved and Runway 35 extended
1983	Glide slope antenna, middle marker, and Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR) installed
1984	Snow removal equipment is acquired
1986	Land is acquired for the Runway 35 approach
1989	Runway 17-35 is rehabilitated – Phase I
1990	Runway 17-35 is rehabilitated – Phase II and the runway is marked and lighted
1990	A Precision Approach Path Indicator (PAPI) is installed for Runway 17-35
1991	The airport based aircraft ramp is expanded/reconstructed and a taxiway constructed to access the area
	The itinerant aircraft ramp is reconstructed
1993	Land is acquired for the Runway 35 approach
1994	Concord Aviation Services, the third fixed base operation is opened at Concord Municipal Airport taking over operations for Ferns Flying Service, Inc.
1994	An airport master plan update is begun
1994	The parallel taxiway is rehabilitated and the ramp is expanded
1996	The airport master plan update is completed
1998	Snow removal equipment is acquired
1999	Snow removal equipment is acquired
2000	Runway 12-30 rehabilitation design completed
2002	Runway 12-30 pavement is rehabilitated and narrowed to 75 feet
2003	Snow removal equipment building is built

Table 1-3 Continued

2004	Completion and occupancy of the newly constructed New Hampshire Army National Guard Facility
2004	Completion of Regional Drive
2004	Rehabilitation/revision of terminal automobile parking lot

Table 1-4 depicts the recommendations made in the *March 1996 Concord Municipal Airport Master Plan Update*.

Table 1-4: March 1996 Concord Municipal Airport Master Plan Update Recommendations/Project Completion

1996 Recommendations	Projects Completed	Date Completed	Projects Not Completed
Rehabilitate the existing terminal building			✓
Extend Regional Drive	✓	2004 ¹	
Construct a new Army National Guard storage hangar, office and ramp	✓	2004	
Construct a snow removal equipment building	✓	2001	
Replace existing fuel farm with a new facility	✓	1996	
Reserve the area east and west of the closed Runway 03-21 for future hangar development	✓	1996 ²	
Rehabilitate Runway 12-30 pavement	✓	2002	
Construct a parallel taxiway to Runway 12-30			✓
Convert the closed Runway 03-21 to a taxiway			✓
Reserve the area west of the closed Runway 03-21 for future aviation compatible development	✓	1996 ²	
Extend Canterbury Road			✓
Purchase avigation easements and properties located within the runway protection zones			✓
Complete an obstruction study for all approaches			✓
Abandon Canterbury Road and assemble a development parcel			✓
Reserve the area east of Runway 12-30 (at the approach end of Runway 30) for future light industrial/office park expansion	✓	1996 ^{2 & 3}	
Reserve development parcel for future airport development east of the approach end of Runway 30	✓	1996 ^{2 & 3}	

Source: *March 1996 Concord Municipal Airport Master Plan Update*, 1996^{xxx}

Notes:

1. The Regional Drive extension was opened for automobile traffic in the 2004, with final completion estimated to be in the summer of 2005.
2. These areas have been reserved for future development and are depicted on the 1996 ultimate airport layout plan as such; however, as of September 2004, development of these properties has not occurred
3. Discussions with the City of Concord indicate that this airport property is being sold to a private developer as of September 2004

7.0 Aviation Services, Airport Tenants, and Other Aviation Activity

7.1 Aviation Services - Air Carrier Service

As indicated above, Concord Municipal Airport had, at one time, two separate companies providing air carrier service to the airport: 1) Northeast Airlines provided air carrier service at Concord Municipal Airport for 15-years (from 1947 to 1962); and 2) Precision Airlines provided air carrier service for two years (from 1978 to 1980).

Since the termination of air carrier service in 1980 by Precision Airlines, there has been no other air carrier service at Concord Municipal Airport.

7.2 Aviation Services - FBO Service

As indicated above, Mr. Robert C. Fogg opened the first fixed base operation (FBO) in Concord in 1920 and in 1946 Ferns Flying Service, Inc. (FFS) established the second FBO operations at the airport until 1994.

Since 1994, Concord Aviation Services has provided FBO services at Concord Municipal Airport providing the following:

- Aviation fuel (Jet A/100 Low Lead - LL)
- Aircraft parking (ramp and tie-down)
- Hangars
- Passenger terminal and lounge
- Flight school/flight training
- Aircraft rental
- Aerial tours/aerial sightseeing
- Aircraft maintenance – airframe
- Aircraft maintenance – powerplant
- Aircraft cleaning and detailing
- Rental cars
- Courtesy transportation
- Catering
- Pilot supplies
- Pilots lounge/snooze room
- Restrooms
- Public telephone
- Airport Management

7.3 Airport Tenants/Users

The following sections identify the airport's existing tenants, both aviation and non-aviation related and typical airport users.

The tenant's lease agreements are described in *Chapter 6 – Capital Improvement Plan & Airport Operations/Finances* of this airport master plan update.

7.3.1 Aviation Tenants

Table 1-5 depicts the aviation tenants that operate at the airport.

Table 1-5: Aviation Tenants at Concord Municipal Airport as of September 2004

Tenant	Description of Business
Concord Aviation Services	As indicated above Concord Aviation Services provides FBO services and airport management at Concord Municipal Airport. Concord Aviation Services leases hangar space from the City/airport for their office/hangar facilities.
New Hampshire Army National Guard	Concord Municipal Airport is the New Hampshire Army National Guard Headquarters for the State. The 1159 th Medical Company Air Ambulance division is located at the airport. The Army leases 26-acres of land from the City/airport for their office/hangar and ramp facility.
Craig Avionics	Craig Avionics is a FAA certified avionics repair station and provides aircraft electronics (avionics) system installation and line troubleshooting of avionics aircraft problems. Craig Avionics subleases hangar/office space from Concord Aviation Services.
Concord Airport Association	Concord Airport Association (not to be confused with the Concord Aviation Association as listed in the history section above) is a flying/aviation education club that formed in 1996. According to their web site, “the association was formed by people interested in Concord Airport and general aviation”. ^{xxxix} They host several aviation related events and aviation safety seminars. Concord Airport Association does not lease land or office space from the airport but uses the terminal building for their events/meetings.
New Hampshire Civil Air Patrol	The New Hampshire Civil Air Patrol, the State of New Hampshire’s Wing Headquarters, has been active at the airport since 1941. There are currently 632 active members within the State. ^{xxxix} They operate out of their own building with land leased from the City/airport. They currently do not base any of their aircraft at Concord Municipal Airport.
New Hampshire State Police – Aviation Unit	The Aviation Unit operates a Cessna 182 aircraft and a Bell 206 Jet Ranger helicopter. Primary mission of the helicopter is for search and rescue, while the Cessna 182 is to enforce the State's motor vehicle laws. Over the last two years the Aviation Unit logged 700.2 hours of flight time in 345 missions. ^{xxxix} The State Police own their own hangar and lease land from the City/airport.
Sunlight Corporation	Sunlight Corporation is an aircraft management company, which manages and operates aircraft for private individuals. Sunlight Corporation subleases hangar/office space from Concord Aviation Services.
C&M Management Corporation (T-hangar Tenants)	There are two multi-unit t-hangars located at the airport. There are six individual aircraft storage units, or aircraft storage bays, within each multi-unit t-hangar, for a total of 12 units. The hangars are part of a condo association, which leases land from the City/airport.
Other Hangar Tenants	Various private aircraft owners sublease aircraft storage space from Concord Aviation Services

Table 1-5 Continued

Ramp/Tie-down Tenants	There are 37 aircraft stored on the based aircraft ramp at Concord Municipal Airport. All 37 aircraft owners sublease space from Concord Aviation Services.
NOAA Environmental Technical Laboratory (ETL)	The Regional Weather and Climate Applications Division of ETL leases land from the City/airport to house and maintain an extensive collection of sensors that enable them to study and collect regional weather and climate data.
National Weather Service	The National Weather Service maintains and operates the Automated Surface Observing System (ASOS) and occupies and leases office space in the terminal building from the City/airport with plans to move into the FAA tenant space identified below.
FAA	The FAA leases office space in the terminal building and land from the City/airport to provide a radio relay antenna for Manchester approach control and Boston Center.

According to Concord Aviation Services, Pro Star Aviation, an aircraft avionics installation, service and aircraft maintenance company based at Manchester Airport, is interested in expanding their aviation maintenance capabilities at Concord Municipal Airport. They would lease hangar space or land from the airport.^{xxxiv} According to Pro Star Aviation's official website,^{xxxv} their customer base is Fortune 500 corporations and aircraft charter companies operating corporate type jet aircraft and some, but few, turboprop aircraft. Their maintenance department specializes in business aircraft and they are an FAA-Certified repair station for the following:

- Cessna Citation – Citation VII;
- Raytheon Hawker – 400 through 800;
- Raytheon Beechcraft King Air;
- Fairchild Merlin;
- Gulfstream II, III, and IV; and
- Bombardier Challenger 601

As of September 2004, contracts between the City/airport/Concord Aviation Services and Pro Star Aviation have not been signed. Discussions with Donald White, Pro Star Aviation's President, indicate that the company is only in the initial phases of discussion with Concord Municipal Airport and that expansion of the company depends upon Pro Star Aviation's economics and future demand.

There are no other aviation related businesses providing aviation services at the airport.

7.3.2 *Non-Aviation Tenants*

Table 1-6 depicts the non-aviation tenants that operate at the airport.

Table 1-6: Non-Aviation Tenants at Concord Municipal Airport as of September 2004

Tenant	Description of Business	Number of Annual Rentals	Number of Parking Slots Required Weekly	Number of Parking Slots Required During Peak Periods/Racecar Weekends
Hertz ¹	Car Rental Company subleasing space in hangar #1 from Concord Aviation Services	2,880 ²	10 weekly	150
Henniker River Group, LLC	A non-aviation related consulting firm subleasing space in hangar #4 from Concord Aviation Services	NA		

Notes:

1. According to discussions with Hertz staff,^{xxxvi} they typically rent approximately 50 cars per week. On average they need 10 parking slots per week. Those vehicles are typically parked curbside in front of the airport terminal building. They rent approximately 150 cars in July and 150 in September during the special event weekends during the summer. About 5 percent of their business is airport related. The majority of their car rentals come from businesses in the Concord area.
2. Approximately 10 percent of their car rentals are rented during race weekends

7.4 Other Aviation Activity – Airport Users

Although the companies listed in this section are not considered airport tenants (i.e. they do not actually lease land or office space from the City/airport), they frequently operate at the airport. They include a mix of fractional aircraft ownership companies^{xxxvii} and other corporate operators that either have offices or conduct business within the local Concord area or are present at the airport during peak activity such as during race car events - National Association for Stock Car Auto Racing (NASCAR) events - at the New Hampshire International Speedway (see *Chapter 2 – Aviation Demand Forecasts* of this report for further information on peak airport activity).

It is helpful to document their use of the airport so that we can better determine future airport facility needs.

Table 1-7 lists the aviation related companies that typically operate aircraft at the airport, while **Table 1-8** lists the non-aviation related companies.

Table 1-7: Aviation Related Companies that Typically Operate at Concord Municipal Airport

Company Name	Company Type	Number of Annual Operations	Typical Aircraft Used
Corporate Wings, Inc. d/b/a Flight Options	Fractional Ownership	4	Cessna Citation – Bravo
		2	Cessna Citation – Citation VII
		2	Cessna Citation Jet – CJ1
		2	Cessna Citation – Citation X
		2	Gulfstream IV
		2	Embraer Legacy
		2	Dassault Falcon 50,
		2	Raytheon Hawker 800XP
		2	Raytheon Hawker 800
		2	Raytheon Beechcraft Beechjet 400
		2	Raytheon Beechcraft King Air
		2	Bombardier Challenger 601
Flight Options Total - 2003		26	
NetJets and Executive Jet	Fractional Ownership	20	Cessna Citation – Encore
		4	Cessna Citation - Ultra
		8	Cessna Citation – Excel
		4	Cessna Citation – Citation VII
		2	Cessna Citation – Citation X
		2	Raytheon Hawker 800XP
		4	Raytheon Hawker 1000
		0	Dassault Falcon 2000
		0	Gulfstream IV-SP
		2	Embraer Legacy
		6	Vendors ¹
		NetJets and Executive Jet Total - 2003	
Citation Shares	Fractional Ownership	2	Cessna Citation - Bravo
		2	Cessna Citation - Excel
		2	Cessna Citation Jet – CJ1
		0	Cessna Citation – Sovereign
Citation Shares Total - 2003		6	
FlexJet, Inc	Fractional Ownership	18 ⁷	Bombardier Learjet 31
			Bombardier Learjet 40
			Bombardier Learjet 45
			Bombardier Learjet 60
			Bombardier Challenger 604
			Bombardier Challenger 300
Jefferson Pilot Financial ²	Corporate Operator	420	Raytheon Beechcraft Jet 400’s
JBI Helicopter Services ³	Corporate Operator	250 ⁷	Bell - Jet Rangers
			Bell - Long Ranger
			Bell - 407
Race Team Aviation Association ⁴	Corporate Operator	16 ⁷	Cessna Citation – Citation II
			Raytheon Beechcraft King Air
			Raytheon Hawker 800XP
			Gulfstream I
Roush Racing ⁵	Corporate Operator	20	Boeing 727
Hendrick Motorsports ⁶	Corporate Operator	48 ⁷	Saab 2000’s
			Gulfstream III
			Gulfstream II
			Raytheon Beechcraft 1900

Table 1-7 Continued

NASCAR	Corporate Operator	32 ⁷	Dassault Falcon 2000
			Bombardier Learjet 60
			Bombardier Learjet 31
			Raytheon Hawker 800XP
			Cessna Citation – Citation III
			Cessna Citation – Citation X
Fly an Ad	Corporate Operator	12	
Total Number of Annual Operations		900	

Notes:

- Based on a mix of all Netjet aircraft listed above
- Jefferson Pilot Financial is an individual and group shareholder-owned life insurance company. Its corporate headquarters are located in Greensboro, North Carolina with satellite offices located in Omaha, Nebraska and Concord, New Hampshire. According to discussions with the FBO,^{xxxviii} the corporate jet shuttles employees to their North Carolina office at least 4 days per week with an occasional 5-day schedule during peak business activity.
- JBH Helicopter Services operates a full service helicopter company out of their own heliport facility in Pembroke, NH. The company typically does a lot of agricultural work and construction work. However, during NASCAR race weekends they provide helicopter transportation from Concord Airport to the racetrack in Loudon, NH for both racecar drivers and crew and for the general public. According to the office manager for JBH Helicopter Services, they typically operate on Sundays, only, during both the July and August NASCAR races ^{xxxix}
- The Race Team Aviation Association (RTAA) was formed to help with air traffic during NASCAR race weekends. They have 140 aircraft and 150 pilots that operate to and from race locations for their race teams. According to discussions with the Race Team Aviation Association president, the aircraft listed are associated with the following race teams: Nemco Motorsports, Robert Yates Racing, and Joe Gibbs Racing. They typically fly in on Thursday and leave on Sunday during the two race weekends with two operations conducted per aircraft.
- According to discussions with staff, Roush Racing supplies marketing and team services for several race teams. They fly two Boeing 727's into Concord Municipal Airport during July and September race weekends and occasionally at other times during the year.^{xl}
- According to discussions with staff, Hendrick Motorsports supplies marketing and team services for several race teams. They fly the mix of aircraft listed during race weekends with several operations taking place from Thursday through Sunday.
- Operations by each aircraft type is not recorded

Table 1-8: Non-Aviation Companies that Typically Operate at Concord Municipal Airport

Tenant	Description of Business	Number of Annual Rentals	Number of Parking Slots Required Weekly	Number of Parking Slots Required During Peak Periods/Racecar Weekends
Enterprise Rent-A-Car ¹	Car Rental Company	150 ²	1 weekly	50

Notes:

- They do not lease space from the airport. They have their own office located on Manchester Street, south of the airport but they are on the airport on a regular basis. According to discussions with Enterprise Rent-A-Car staff,^{xli} they typically rent approximately four cars per month (48 annually) to Concord Aviation Services' customers. Those vehicles are typically parked curbside in front of the airport terminal building. They rent approximately 100 cars during the two race weekends during the summer (July and September).
- Approximately 66 percent, of their car rentals are rented during race weekends

8.0 Airport Facilities

This section describes the airport's existing facilities in terms of location, configuration, size and use characteristics.

8.1 Airport Pavement Condition

Typically, airport pavement condition is reported as a numerical designation from 100 (best) to 1 (worst) called the pavement condition index (PCI). The PCI indicates the relative condition of airport pavements, as described in **Table 1-9**.

Table 1-9: PCI Index Legend

PCI Index	Pavement Condition
85-100	Excellent
70-84	Very Good
55-69	Good
40-54	Fair
25-39	Poor

Source: FAA

A pavement evaluation study was completed for the NHDOT in October of 2003 identifying the condition of pavements at Concord Municipal Airport.

Runway 17-35

At the time of the evaluation, Runway 17-35 had a PCI of 84, which is very good. Reconstruction of the pavement was completed in 1990.

A crack sealing project to maintain the pavement on Runway 17-35 was completed between July and November 2001.

Runway 12-30

The reconstruction and narrowing of Runway 12-30 to 75 feet was done in 2002. At the time of the evaluation, Runway 12-30 had a PCI of 90, which is excellent.

Although the condition of the runways is listed as very good and excellent, inevitable deterioration in the pavement will occur. The FAA indicates that the estimated life of runway pavement is 15 to 20 years. The airport has completed basic pavement maintenance such as crack sealing as identified above. Although this should be sufficient maintenance to uphold the integrity of the runways, rehabilitation is necessary for Runway 17-35 and Runway 12-30 within the planning period of this master plan update. Runway 17-35 will approach its estimated life of 15 years in 2005 (last rehabilitation done in 1990), while Runway 12-30 will approach its estimated life of 15 years in 2017 (last rehabilitation done in 2002).

Taxiways

At the time of the evaluation, Taxiway A, the parallel taxiway to Runway 17-35, had a PCI of 74, which is very good. The stub taxiways had PCI's from 69 to 79, or good to very good.

The closed Runway 03-21, which is used for overflow aircraft parking and taxiing had a PCI of 85, excellent; however, the center section of the closed runway is fair.

The taxiways to the Army facilities had a PCI of 80 (access taxiway to old Army facility), which is very good, and 95 (access taxiway to new Army facility), which is excellent.

The condition of the taxiways has deteriorated since the pavement evaluation and should be reevaluated to determine when rehabilitation will be necessary.

Ramps

At the time of the evaluation, the itinerant ramp had a PCI of 78, which is very good. The based aircraft ramp was not recorded in the 2003 evaluation. However, the previous PCI (evaluated in 1998) was 85, which is excellent. The New Hampshire Army National Guard ramp was recently constructed (2003/2004) and is in excellent condition with a PCI of 95.

8.2 Runways

Two active runways serve Concord Municipal Airport, Runway 17-35 and Runway 12-30. Runway 17-35 is 6,005 feet in length by 100 feet wide with a 640-foot displaced threshold on the Runway 17 end, while Runway 12-30 is 3,200 feet in length by 75 feet wide.

Table 1-10 provides a summary of runway data for Concord Municipal Airport.

Table 1-10: Runway Data – Concord Municipal Airport

	Runway 17	Runway 35	Runway 12	Runway 30
Length (feet)	6,005 with a 640-foot displaced threshold on the Runway 17 end		3,200	
Width (feet)	100		75	
Traffic pattern	Left	Left	Left	Left
Runway heading	171 magnetic, 155 true	351 magnetic, 335 true	121 magnetic, 105 true	301 magnetic 285 true
Latitude/ Longitude	43-12.49033N 071-30.45952W	43-11.59407N 071-29.88965W	43-12.46093N 071-30.41458W	43-12.32410N 071-29.71918W
Threshold Elevation (feet)	341.0 for both threshold and displaced threshold	332.8	340.2	341.4
PCI	84		90	
Surface Material and Condition/Date Constructed, Overlaid or Reconstructed	Asphalt – in very good condition Constructed – 1938/1939 Reconstructed – 1990		Asphalt – in excellent condition Constructed – 1938/1939 Reconstructed – 2002	
Weight Limitations (pounds) ¹	SWL – 43,000 DW – 60,000		SWL – 30,000	
Runway Markings ²	Basic – good condition	Precision – good	Non-precision – very good condition	
Runway Signs ³	Location Direction		1 Direction Sign to the Army Facility	
Approach Lights	REILs ⁴	MALSR ⁵	None	None
Runway Edge Lighting	High Intensity Runway Lights (HIRLs)		Medium Intensity Runway Lights (MIRLs)	
Other Navigational and Visual Aids	<ul style="list-style-type: none"> 4-light PAPI on left ⁶ Unlit, windsock on left ⁷ 	<ul style="list-style-type: none"> 4-box VASI on left ⁶ Middle marker off of airport property Outer marker off of airport property 	Unlit, windsock on right ⁷	None
	Airport Rotating Beacon, Compass Calibration Pad and Automated Weather Observing System (AWOS) There are two hazard beacons located to the east of Runway 35's approach installed in 1978. There is at least one known obstruction light located on a security fence at the old New Hampshire Army National Guard facility			
Instrument Approach ⁸	GPS	ILS, NDB or GPS	VOR or GPS	None

Sources: FAA Form 5010, *Airport Master Record*, ^{vii} 1996 Airport Master Plan, ^{xlii} Airnav.com^{xliii} and 1996 Airport Master Plan Ultimate drawing^{xliv}
 Notes:

- Runway weight data is a realistic estimate of the airport's pavement strength at an average level of airport activity. The acronyms pertain to the landing gear type of an aircraft and are as follows: SWL = single wheel and DW = dual wheel. According to AC 150/5320-6D, Airport Pavement Design and Evaluation, the FAA states that, "For design purposes the pavement should be designed for the maximum anticipated takeoff weight of the design aircraft".^{xlv}
- At the time of the inventory (September 2004) the runway markings for Runway 17-35 were good, however, the paint is starting to yellow
- The runway signs are in poor condition and are confusing. Based on that knowledge, a sign plan has been added to this airport master plan update
- REILs are runway end identifier lights, which is a type of economy runway approach lighting system. REILs are two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.^{xlvi} The REILs at the approach end of Runway 17 have been inoperative since 1986 due to removal of the power source.^{xlvii}
- A Medium Intensity Approach Light System with Runway Alignment Indicator Lights, or MALSR, is a type of approach lighting system (ALS) that provides pilots with a basic means to transition from instrument flight to visual flight for landing at an airport. An ALS enhances instrument approach procedures and aids pilots in locating the approach end of a runway.^{xlviii} A MALSR is a 2,400-foot system with runway alignment indicator lights. The configuration of this system allows for reduced visibility minimums and is required for any airport with approach visibility minimums that are less than ¾ of a mile.^{xliv}
- A visual approach slope indicator (VASI) and a precision approach path indicator (PAPI) are similar lighting aids that provide visual approach slope guidance to the runway touch down area; ⁱ however, VASI's are difficult to maintain because system parts are no longer manufactured due to the replacement of such systems by the newer and more advanced PAPI systems.
- Both are faded, torn and hard to see
- The instrument approaches listed are as follows: a GPS is a global positioning system; an ILS is an instrument landing system; an NDB is a non-directional beacon; and a VOR is a very high frequency (VHF) omni-directional range^{eli} and ^{lii}

8.3 Taxiways

Concord Municipal Airport has one parallel taxiway, Taxiway A, which provides access to the approach ends of Runway 17-35. There are four-access taxiways (or stub taxiways) connecting the parallel taxiway to the runway.

Runway 12-30 is accessible via the closed Runway 03-21, which intersects at the midpoint of the runway. There is no parallel taxiway to enter the approach end of Runway 30. Pilots must back-taxi approximately 1,320 feet on the runway, from the closed Runway 03-21, to get to the approach end of Runway 30 for takeoff. The approach end of Runway 12 is accessible via the parallel taxiway, Taxiway A, and the approach end of Runway 17.

There are two-access taxiways (or stub taxiways) providing access to both the old and new NH Army National Guard facilities, one located at the approach end of Runway 17 (to access the old facility) and the other located at the approach end of Runway 12 (to access the new facility).

Currently, improvements are needed to rectify the confusing taxiway at the intersection of the approach ends of Runways 12 and 17.

Table 1-11 provides a summary of taxiway data for Concord Municipal Airport.

Table 1-11: Taxiway Data – Concord Municipal Airport

	Parallel Taxiway A	A 1	A 2	A 3	A 4	Old Army Guard Access Taxiway	New Army Guard Access Taxiway
Length (feet)	6,005	300	300	300	300	940	380
Width (feet)	50	50	50	50	75	50	50
Surface Material	Asphalt	Asphalt	Asphalt	Asphalt	Asphalt	Asphalt	Concrete
Date Constructed, Overlaid or Reconstructed	Constructed 1975 Reconstructed (north section only) 1990	Constructed 1975	Constructed 1975	Constructed 1975	Constructed 1975	The majority was removed in 2004 when Regional Drive was constructed	Constructed 2003/2004
PCI	74	73	79	69	74	80	95
Surface Material Condition	Very Good	Very Good	Very Good	Good	Very Good	Good ¹	Excellent
Marking	Centerline	Centerline	Centerline	Centerline	Centerline	Centerline	Centerline Edge
Marking Condition	Poor	Poor	Poor	Poor	Poor	Poor	Excellent
Taxiway Signs	ILS Hold Runway Hold Direction Location	Direction Location	Direction Location	Direction Location	Direction Location	None	None
Lighting ²	None	None	None	None	None	None	MITL

Notes:

1. Although a PCI rating for this pavement was not evaluated during the 2003 study, visually, the pavement appears to be in good condition
2. MITL are medium intensity taxiway lights

8.4 Airport Ramps/Aircraft Storage

Concord Municipal Airport has three aircraft ramps. The ramps are known as the south ramp, the itinerant ramp and the New Hampshire Army National Guard ramp.

The south ramp is used for based aircraft storage. The itinerant ramp is used for itinerant, or temporary, aircraft storage. And the Army, only, uses the New Hampshire Army National Guard ramp for their helicopter and aircraft operations/storage.

Although the airport does not have permanent turf ramps, they do use two turf areas for overflow aircraft parking when needed, such as during special events (NASCAR races) or when corporate jet activity utilizes all available itinerant ramp space (see *Chapter 2 – Aviation Demand Forecasts* of this report for further information on peak airport activity). Those areas are as follows:

- The grass area located south of the based aircraft storage ramp (south ramp); and
- The grass area located north of the terminal building

The closed runway (Runway 03-21) is also used for overflow parking for at least three Boeing 727 aircraft during special events (NASCAR races).

Table 1-12 provides a summary of ramps, pavement condition and aircraft storage data for Concord Municipal Airport.

Table 1-12: Concord Municipal Airport Ramps/Aircraft Storage Areas as of September 2004

Ramp/Location	Size (sf)	PCI	Surface Material	Condition	Date Constructed, Overlaid or Rehabilitated	Aircraft Storage Capacity - Ramp
Based Aircraft Storage: South Ramp	140,000	85	Asphalt	Excellent	Constructed 1991	45 ¹
Itinerant Aircraft Storage: Itinerant Ramp	75,000	78	Asphalt	Very Good	Constructed 1948 Reconstructed 1991	29 ²
New Hampshire Army National Guard Ramp	270,000	95	Concrete	Excellent	Constructed 2003/2004	10
Actual Civilian Based Aircraft on Ramp						37
Actual Military Based Aircraft on Ramp						0 ³
Total						37

Source: Concord Aviation Services^{liii}

Notes:

1. Thirty-seven of the 49 available storage spaces are being leased to private aircraft owners as of September 2004. And four of the 49 available storage spaces are not available due to State Police helicopter traffic in the area
2. Two of the 29 available storage spaces are for large aircraft
3. The New Hampshire Army National Guard has seven Black Hawk helicopters and one King Air but they are mainly stored in the adjacent hangar (see Table 1-13 below)

8.5 Airport Buildings and Hangars/Aircraft Storage

This section includes an overview of the airport buildings and aircraft storage hangars located at Concord Municipal Airport.

Table 1-13 identifies those airport buildings and aircraft storage hangars.

Table 1-13: Airport Buildings and Aircraft Storage Hangars at Concord Municipal Airport

Building	Building Owner	Lessee/Sub-Lessee	Lease Type	Size (sf)	Condition	Actual Based Aircraft ¹
Terminal Building	City of Concord	Concord Aviation Services, FAA, and National Weather Service	Facility	9,265	Poor	None
Conventional Hangar #1	City of Concord	Concord Aviation Services/3 private aircraft owners	Facility	11,500	Fair	<u>7 Total</u> 6 SE 1 ME
Conventional Hangar #2	City of Concord	Concord Aviation Services/14 private aircraft owners	Facility	8,000	Fair	<u>15 Total</u> 13 SE 1 HE 1 UL
Conventional Hangar #3	City of Concord	Concord Aviation Services/4 private aircraft owners	Facility	8,000	Fair/Good	<u>4 Total</u> 3 SE 1 ME
Conventional Hangar #4	City of Concord	Concord Aviation Services/7 private aircraft owners	Facility	12,000	Excellent	<u>7 Total</u> 1 ME 4 TP 1 TJ 1 UL
T-Hangar 1	C&M Management Corporation	Various private aircraft owners	Land	7,000	Excellent	<u>7 Total</u> 7 SE
T-Hangar 2	C&M Management Corporation	Various private aircraft owners	Land	7,000	Excellent	<u>5 Total</u> 4 SE 1 ME
State Police Conventional Hangar	State of NH	NH State Police Aviation Unit	Land	8,000	Excellent	<u>2 Total</u> 1 SE 1 HE
Civil Air Patrol	City of Concord	Civil Air Patrol	Facility	1,500	Fair	None
45 Airport Drive	City of Concord	None/Vacant	Facility	1,800	Poor	None
NH Army National Guard Facility	NH Army National Guard	None	Land	55,000	Excellent	<u>8 Total</u> 1 TP 7 HE
Snow Removal Equipment Facility	City of Concord	None	None	4,200	Excellent	None
Civilian Aircraft Capacity - Hangars				61,500		
Actual Civilian Based Aircraft - Hangars						47
Actual Military Based Aircraft - Hangars						8
Total						55

Sources/Notes: *March 1996 Concord Municipal Airport Master Plan Update*^{iv} and Concord Aviation Services^{lviii}

1. The acronyms pertain to the following: SE-single engine, ME-Multi-engine, UL-Ultralight, HE-helicopter, TP-turboprop, and TJ-turbojet

8.5.1 Terminal Building

Concord Municipal Airport's terminal building is located adjacent to the primary access road, Airport Road, on the west side of the airport.

The building is a 9,265 square foot, two-story, brick and wood frame structure built in 1938 and expanded in 1961. Inspection of the building and discussions with City and airport staff, indicate that the building is generally in poor condition and in need of major renovation.

According to discussions with City officials and terminal reports, “the building has several significant code violations, structural deficiencies, does not meet Americans with Disabilities Act of 1990 (ADA) regulations, and does not have appropriate security devices to monitor access to the runway.”^{lv} Although the *March 1996 Concord Municipal Airport Master Plan Update* indicates that the amount of space available in the building is adequate (9,265 square feet) to meet projected space requirements for public and tenant space, it also indicates that the existing structure would have to be renovated to address the code violations, structural deficiencies, ADA regulations, security, and individual tenant needs.^{lvi}

The *March 1996 Concord Municipal Airport Master Plan Update*^{lvii} also indicates that the terminal building serves as the “gateway” to the City for those flying into the airport to: 1) conduct business in Concord; 2) vacation in central New Hampshire; 3) attend various special events such as NASCAR races at the New Hampshire International Speedway; and 4) participate in New Hampshire Presidential Primaries. The City has proposed to either renovate or construct a new terminal facility that not only addresses code violations but also addresses the need for a terminal facility that presents a modern, functional “front door” to the City.

Existing facilities in the building include the following:

- Office space;
- Storage space;
- Pilot's lounge with kitchen (sink, refrigerator, microwave, etcetera), television, pilot workspace to log flight activity; and telephone;
- Vending machines
- Conference room;
- Common space used as a central meeting place and waiting space for pilots, visitors and passengers; and
- Public rest rooms

8.6 Automobile Parking

Concord Municipal Airport provides ten paved automobile parking lots. **Table 1-14** lists the automobile parking lots and their automobile storage capacity for both public and private use automobile parking.

Table 1-14: Automobile Parking - Concord Municipal Airport

Parking Lot/Location	Size (sf)	Surface Material	Condition	Automobile Storage Capacity	Use
Civil Air Patrol	7,800	Asphalt	Good	36	Private
Terminal	25,500	Asphalt	Very Good	56	Public
Terminal	3,400	Asphalt	Very Good	18	Public
T-Hangar	1,800	Asphalt	Very Good	9	Private
Hangar #4	3,200	Asphalt	Very Good	15	Public
State Hangar	3,400	Asphalt	Very Good	19	Private
SRE Building	1,200	Asphalt	Excellent	7	Private
NH Army National Guard 1	10,200	Asphalt	Excellent	79	Private
NH Army National Guard 2	3,400	Asphalt	Excellent	18	Private
NH Army National Guard 3	5,000	Asphalt	Excellent	30	Private
Automobile Capacity Total				287	
Automobile Capacity Total – Public Use				89	
Automobile Capacity Total – Private Use				198	

Concord Aviation Services indicated a need for an additional **public** automobile parking lot to accommodate increases in automobile storage requirements during special events as indicated below.

- According to discussions with Concord Aviation Services, during busy summer/fall weekends and special events such as NASCAR races at the New Hampshire International Speedway, the available automobile parking storage is inadequate. The shortage at those times is primarily due to the increase in rental automobile storage needs and for the general public (at least 500 plus fans congregate in the area during race weekends to catch a glimpse of the drivers and race teams). Typically, Concord Aviation Services stores rental automobiles on grassy areas located on the airfield side (within the airport's security fence), east of the two t-hangars. Additional parking for the general public is provided on the landside (outside of the airport's security fence), west of the two t-hangars and the terminal building. Parking within the fence is a safety concern because of the mix of aircraft and automobiles. At least 150 additional rental automobiles are trucked in by Hertz to accommodate increases in demand.
- Not only is additional automobile storage needed during special events, but additional automobile parking is also needed for employees of Jefferson Pilot Financial, a life insurance company with offices located in Concord. According to discussions with staff at Jefferson Pilot Financial and Concord Aviation Services, several employees make weekly trips from the Concord, New Hampshire office to the corporate headquarters located in Greensboro, North Carolina. Most employees spend anywhere from two to three nights in North Carolina, requiring the employee to leave their automobiles in the terminal parking lot overnight.
- Additional automobile parking is also warranted during Parent's weekend at St. Paul's School.

8.7 Fuel Facilities

Concord Municipal Airport has the storage capacity of 28,370-gallons of fuel (15,085-gallons of Jet A and 13,285 100LL), which is stored within underground tanks, installed in 1996, located on the itinerant aircraft storage ramp and within two fuel trucks used to service aircraft on the ramp. The fuel farm is a self-service fuel farm that is maintained and operated by Concord Aviation Services.

During busy summer and race weekends, they provide a third 5,000-gallon Jet-A fuel truck to meet increases in fuel demand and because the existing fuel farm is too small to provide the capacity needed during those busy weekends.

Table 1-15 and **Table 1-16** lists the aviation fuel storage capacity that is available at Concord Municipal Airport.

Table 1-15: Jet-A Aviation Fuel Storage Capacity

Fuel Type	Storage	Capacity (gallons)
Jet-A	Underground storage tank	12,085
	Fuel truck	3,000
Typical Jet-A Fuel Capacity Total		15,085

Table 1-16: 100LL Avgas Aviation Fuel Storage Capacity

Fuel Type	Storage	Capacity (gallons)
100 LL Avgas	Underground storage tank	12,085
	Fuel truck	1,200
Typical 100LL Avgas Fuel Capacity Total		13,285

Although the airport has a total capacity for over 28,000-gallons of fuel, the actual usable fuel is less than capacity due to the following:

1. Federal and State regulations require that tanks never be filled more than 90 percent; and
2. The fuel pump plumbing within the underground storage tanks cannot extract the last 600-gallons from within the tanks;

Table 1-17 lists the usable amounts of aviation fuel available at Concord Municipal Airport.

Table 1-17: Usable Aviation Fuel

Fuel Type	Storage	Capacity (gallons)	Useable Fuel (gallons)
Jet-A	Underground storage tank	12,085	10,200
	Fuel truck	3,000	2,700
Total Jet-A Capacity		15,085	
Total Usable Jet-A			12,900
100 LL Avgas	Underground storage tank	12,085	10,200
	Fuel truck	1,200	1,080
Total 100 LL Avgas Capacity		13,285	
Total Usable 100 LL Avgas			11,280

Discussions with Concord Aviation Services indicate that there is a need for **an additional 18,000-gallon Jet-A fuel tank** to accommodate the increased fuel demand during special events. They would like the additional tank to be installed and hooked up in parallel to the existing tank thus allowing for the use of the existing pumping and filtering equipment. The additional 18,000-gallon tank would provide a total gross capacity of approximately 28,500-gallons of useable Jet-A fuel. This would allow storage of slightly more than 3 tractor-trailer loads in the fuel farm tanks (maximum transport load allowed per truck is 8,000-gallons).

Typically, Concord Aviation Services pumps over 12,000-gallons of Jet-A fuel during special events. On July 25, 2004, Concord Aviation Services set a new record for jet fuel pumped in one day, 15,572-gallons. This represents a 20 percent increase of their previous best one-day fuel total of 12,754-gallons. The 15,572-gallons was dispensed into 40 aircraft, averaging 390-gallons per aircraft. Even with 12,900-gallons of total usable fuel available, and the additional third 5,000-gallon Jet-A fuel truck to meet increases in fuel demand, Concord Aviation Services is concerned that they could potentially run out of available Jet-A fuel, especially if the 5,000-gallon fuel truck were unavailable and if five additional aircraft required the average request for fuel (390-gallons) that day.

Although they could receive a fuel delivery, discussions with staff,^{lviii} indicate that it typically takes approximately eight or more hours between the request for fuel and the actual time that the fuel can be pumped into an aircraft after delivery, which translates into significant wait time and inconvenience for the pilots/airport customers. The lag time can be attributed to transportation and testing, timing of deliveries with fuel tank availability, settling requirements and delivery delay.

Table 1-18 illustrates the fuel flowage at the airport for the last five years, which is expressed as the gallons of fuel sold and purchased by Concord Aviation Services for 1999 through 2003.

Table 1-18: Fuel Sold and Purchased – Concord Municipal Airport

Year	Annual Gallons Purchased Jet A	Annual Gallons Sold Jet A	Annual Gallons Purchased 100 LL	Annual Gallons Sold 100 LL
1999	215,845	212,793	74,004	80,155
2000	231,729	228,167	72,006	67,698
2001	212,965	215,583	71,216	75,714
2002	217,319	218,457	78,917	73,925
2003	228,032	222,687	57,040	59,200
Average	221,178	219,537	70,637	71,338

Source: Concord Aviation Services

Note:

In 2001 and 2002 it appears that more gallons were sold than purchased. However, this is not the case. The discrepancy is due to inventory overlap from the previous year.

8.8 Airport Drainage & Catch Basins

Concord Municipal Airport has in-pavement catch basins located along either side of Runway 17-35, on the edges of the runway, and catch basins and drainage swales located along either side of Runway 12-30 and Taxiway A.

For drainage reference, a reduced 11" by 17" drawing of the existing airport facilities is available in *Chapter 5 – Airport Plans, Drawing 2 of 11* of this airport master plan update.

8.9 Utilities

Utilities at the airport include electrical power to the terminal buildings, hangars, rotating beacon, runway lights, and navigational equipment. Water and sewer are both municipally provided.

8.10 Wind

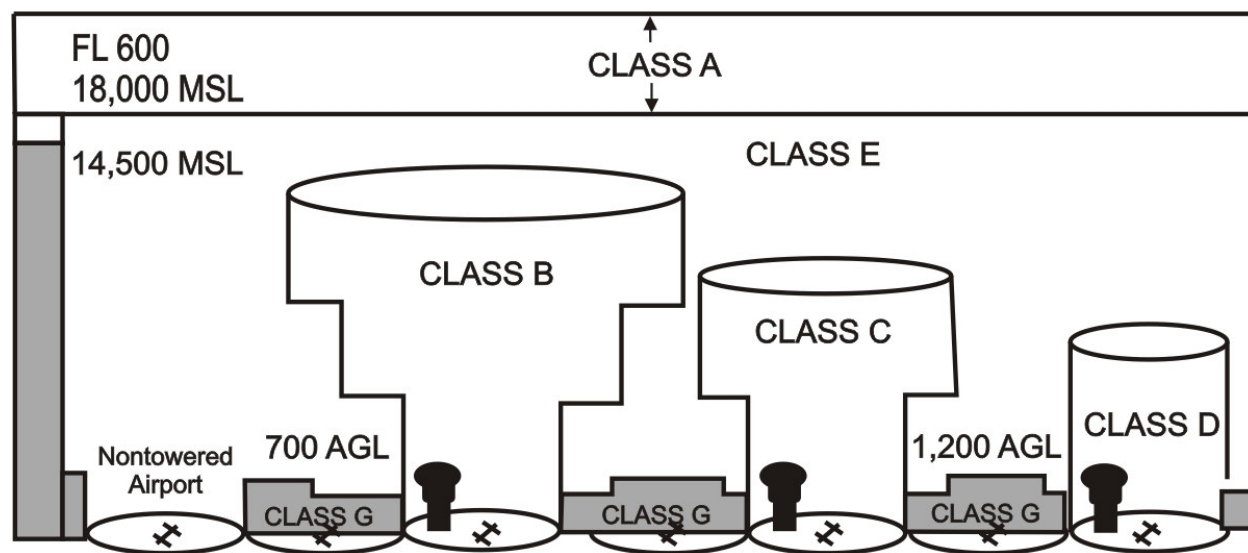
Runway orientation and usage is based on predominant wind direction and minimizing crosswind components. Review of wind data is necessary to develop and determine the runways' wind coverage values. Typically, wind data from on-site airport weather stations or from nearby airports/weather stations are used to compile data for the airport.

The desirable wind coverage for all airport runways is 95 percent. That means crosswinds should not exceed 13 knots for Airport Reference Codes (ARC) A-II and B-II aircraft more than five percent of the time (see further discussion on the ARC in *Chapter 2 – Aviation Demand Forecasts*).^{lix} According to the *March 1996 Concord Municipal Airport Master Plan Update*, the airport is a B-II airport.^{lx}

In previous studies, Concord Municipal Airport has used historical wind data compiled by the National Climatic Center from 1960 to 1964.^{lxi} For the purposes of this master planning effort, and because we are not anticipating changing either runway orientation, the aforementioned historical wind data is used in this airport master plan update. Observations are posted for all-weather and instrument flight rule (IFR) wind observations. Concord Municipal Airport's All-Weather Wind Rose is depicted on Drawing 2, Existing Airport Layout Plan of the plan set.

8.11 Airspace, Pattern Use and Instrument Approaches

The surrounding airspace for Concord Municipal Airport is designated as Class E, which is controlled airspace that extends upward from the surface^{lxii} (or in Concord's case from 700 feet) to the overlying, or adjacent, controlled airspace. It is any airspace that is not defined or designated as Class A, B, C or D. A graphic depiction of the United States airspace system is provided below.



Source: FAA website (www.faa.gov)^{lxiii}

Concord Municipal Airport is a non-towered airport, which is common for many general aviation airports. The airport does have a designated UNICOM¹, or common traffic advisory frequency (CTAF), 122.7,^{lxiv} which pilots can utilize to announce their position to other pilots in the area for safety purposes. This frequency can also be used to activate the following airport lighting and visual aids:

- High intensity runway lights (HIRLs) – Runway 17-35
- Medium intensity runway lights (MIRLs) – Runway 12-30
- Visual Approach Slope Indicator (VASI) – Runway 35
- Precision Approach Path Indicator (PAPI) – Runway 17
- Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR) – Runway 35

Instrument flight rule (IFR) operations procedures are coordinated through the Manchester Control Tower (Manchester Approach/Departure Control) on frequency 127.35, and Manchester Clearance Delivery on frequency 133.65.

All traffic at Concord Municipal Airport for both runways uses a standard left-hand traffic pattern at 1,346 feet MSL or 1,000 feet Above Ground Level (AGL) for non-turbine aircraft and 1,546 feet MSL or 1,200 feet AGL for turbine aircraft.^{lxv} **Table 1-19** identifies the percentage of runway use as reported by staff at Concord Aviation Services.

Table 1-19: Aircraft Operations Per Runway

Runway	Runway 17	Runway 35	Runway 12	Runway 30
Runway Use (percent)	75		25	
	25	50	10	15

There are seven low altitude Federal Airways, known as Victor Airways, in the vicinity of Concord Municipal Airport. A Victor Airway is a fixed route system established for air navigation purposes above 1,200 feet AGL. It connects navigational aids, such as VOR's to facilitate navigation from one point to another.

As indicated in Table 1-10: Runway Data – Concord Municipal Airport above, the airport has four instrument approaches, their approach minimums are depicted in **Figures 1-2** through **1-5**.

¹ UNICOM is a non-government communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications.

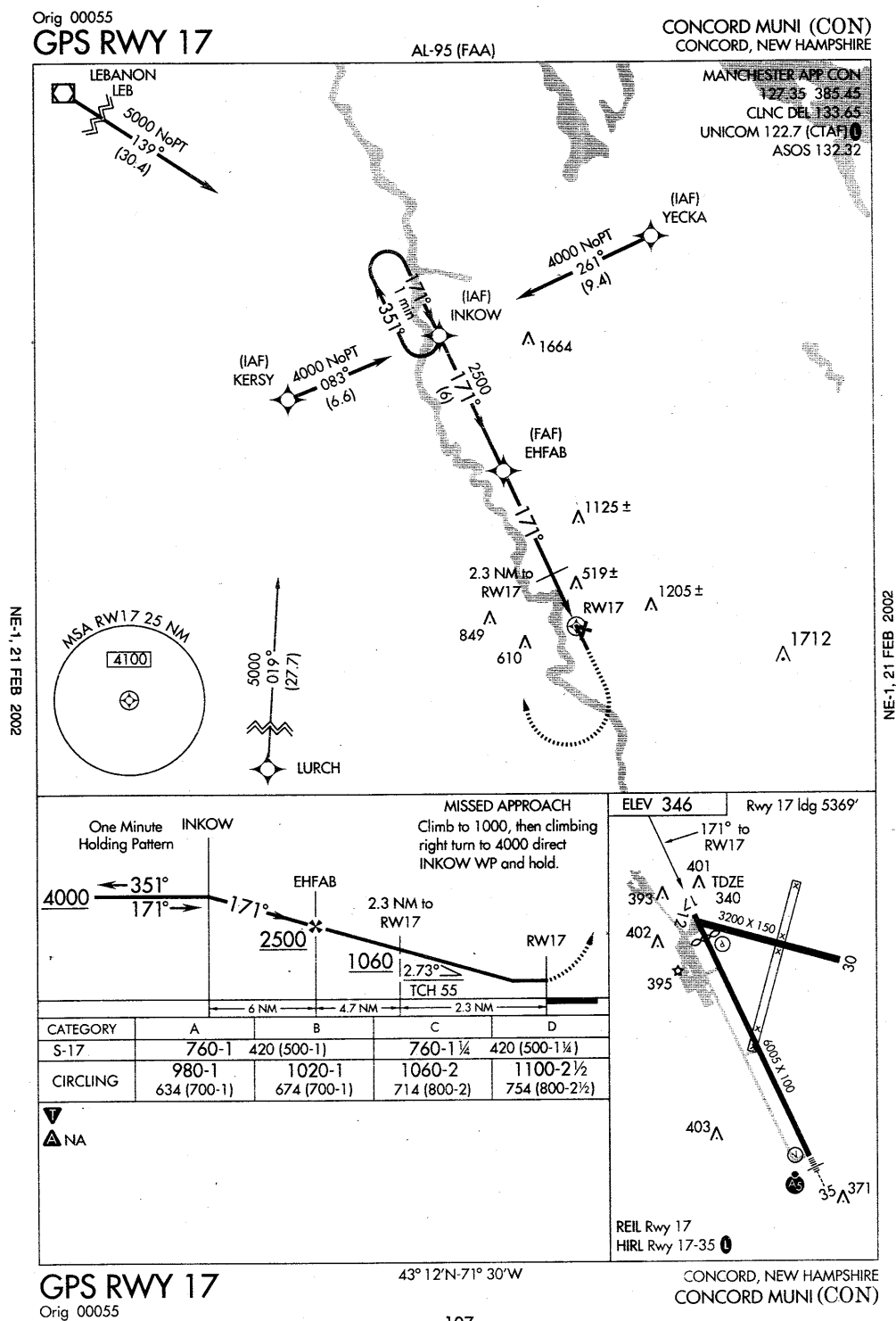


Figure 1-2: Concord Municipal Airport GPS Approach – Runway 17

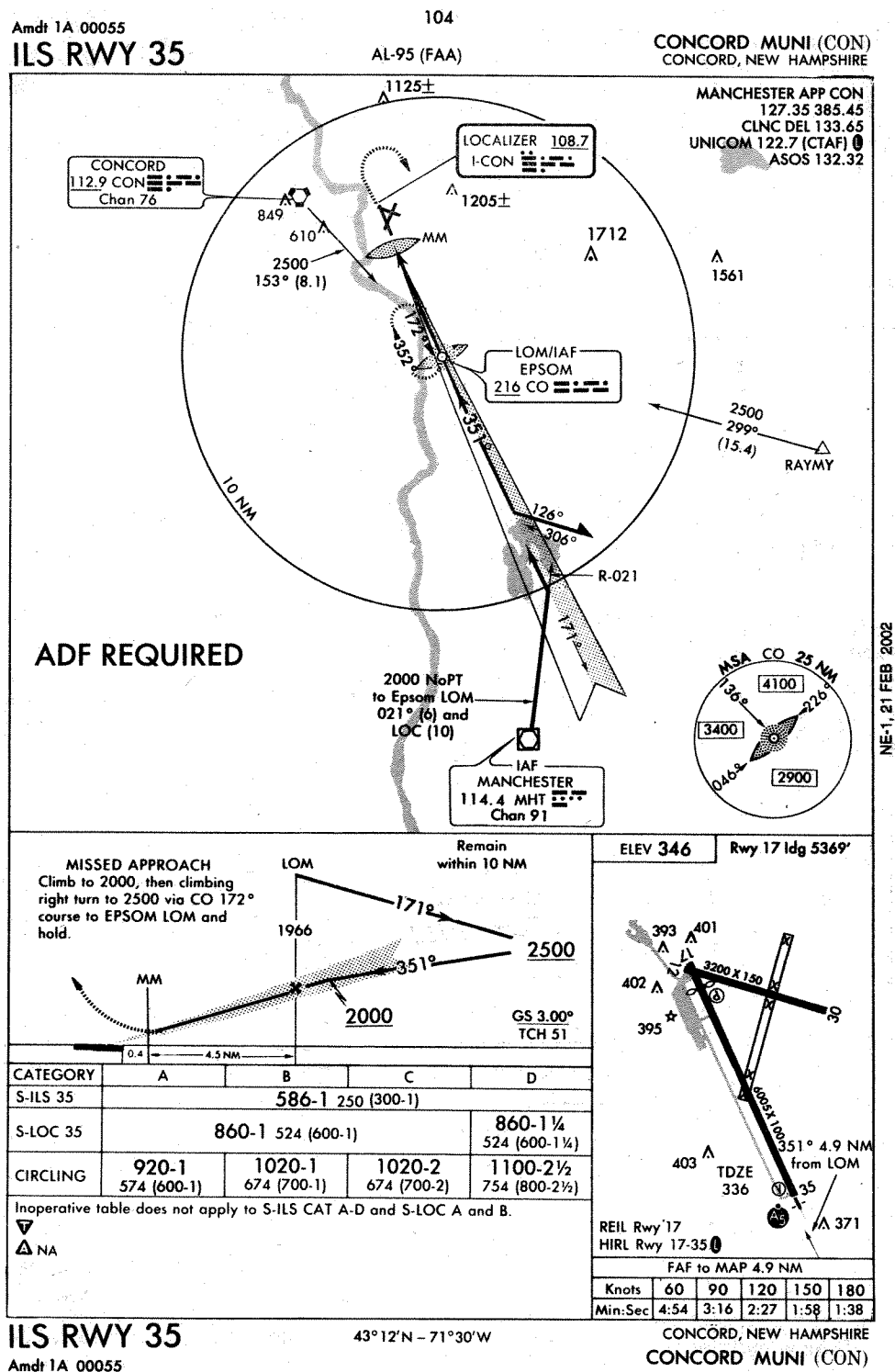


Figure 1-3: Concord Municipal Airport ILS Approach – Runway 35

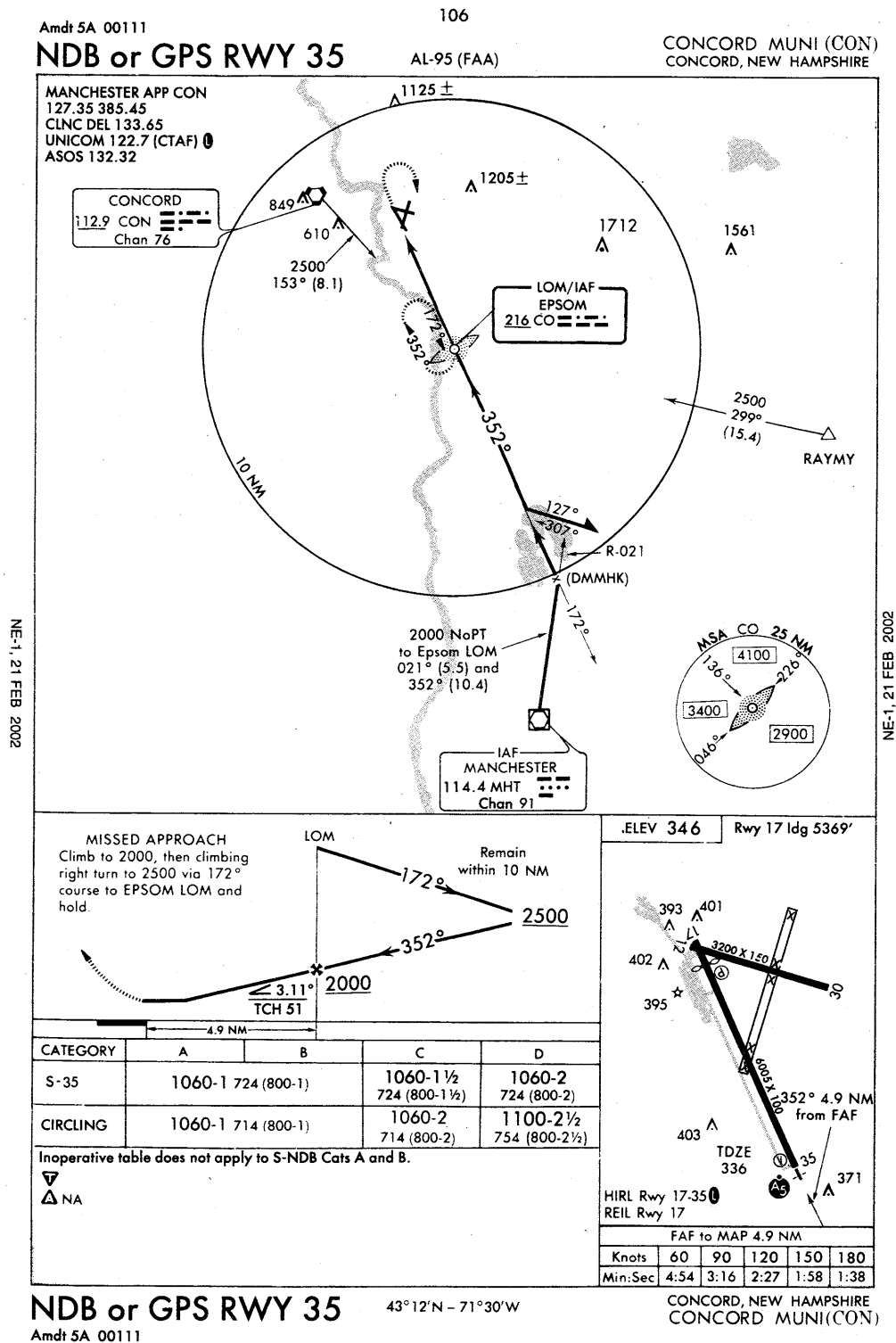


Figure 1-4: Concord Municipal Airport NDB/GPS Approach – Runway 35

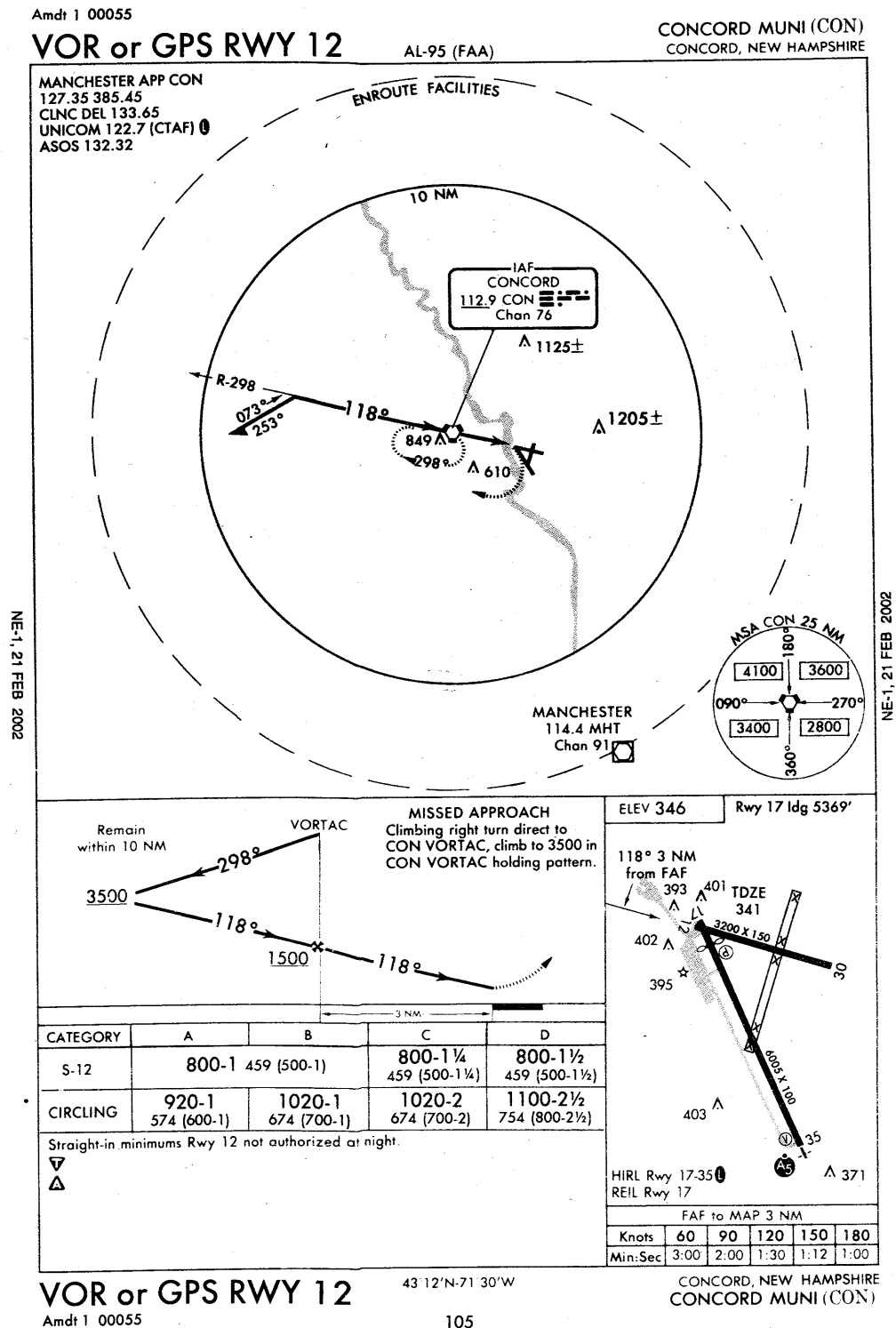


Figure 1-5: Concord Municipal Airport VOR/GPS Approach – Runway 12

9.0 Snow Removal Equipment and Storage Building

The airport currently has five (5) pieces of snow removal equipment (SRE) as follows:

- 1999 International 10-wheel dump truck with 12-foot front plow and double 14-foot wings;
- 1998 John Deere 644H loader with a 20-foot push plow, 20-foot angles plow, a 6-yard snow bucket, and a 3-yard standard bucket;
- 1988 1- ton pickup truck with front plow;
- 2002 1 - ton material spreader for deicing applications;
- 2003 Oshkosh snow blower; and
- 2003 Sweepster broom

The airport's 4,200 square-foot SRE building is a three bay garage used to house the SRE equipment. It was constructed in 2003 and is in excellent condition.

10.0 Fire Station and Emergency Response Facilities

The airport does not have a dedicated airport fire department; however, there is a City fire station, Concord Heights, Station #7, located off airport property on nearby Loudon Road. The Heights Station, typically followed by other area stations as back up, provides initial response to the airport for any aircraft/airport incidents and/or accidents.

The station has the following pieces of equipment, which are staffed by four firefighters and an officer:

1. A fire engine with 750-gallons of water capacity and 50-gallons of Aqueous Film Forming Foam agent (AFFF) to be used for aircraft fires. It is occupied by two firefighters and an officer; and
2. A rescue truck occupied by two firefighters, one of which is also a paramedic.

Discussions with a staff member indicate that one firefighter from the Heights Station has attended aircraft rescue and fire fighting courses provided at the New Hampshire Fire Academy - Aircraft Rescue Firefighting facility in Concord, New Hampshire. He anticipates that other staff members will be added to the training curriculum. He also mentioned that on occasion the Heights Station firefighters train with the New Hampshire Army National Guard regarding helicopter systems and helicopter fire fighting.^{lxvi}

Discussions with a staff member from the City of Concord Community Development Department indicate that the City will conduct a study to determine the best location for a new fire station facility based on call volumes and population. Exploration of combining a new terminal building with a new structural fire station has been discussed but a determination has not yet been made.^{lxvii}

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